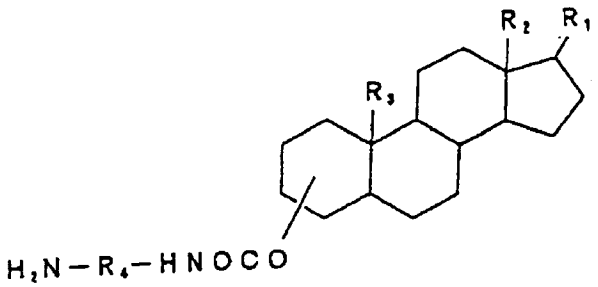
the Schiff base with sodium borohydride. In the case of β-1,3-glucan having branches containing an unreacted hydroxyl group at the 3-position, there are obtained products as expressed by 2.X, 3.X, and 4.X. The reactions occur at the branch or side chain as shown by 5 and 6 in the figure.

The steroid-based functional groups to be introduced into the polysaccharide for use in the present invention by the reductive amination following the periodate oxidation are preferably those derived from the compounds expressed by the formula (2): a compound having a steroid ring to which an amino group or groups are bonded via a spacer.



(2)

In the formula, R_1, R_2 and R_3 independently express hydrogen atom or a substituent containing carbon, oxygen, nitrogen and/or hydrogen atom(s). R_4 denotes a spacer moiety which is hydrogen atom or is derived from a chain or cyclic compound containing carbon, oxygen, nitrogen and/or hydrogen atom(s). The atomic group containing R_4 may be bound to any position of the steroid ring. A compound falling outside the above-mentioned general formula may also be used, provided that it contains a steroid ring, as exemplified by a corticosterone or cortisol derivative.

Such steroid-based functional group may be introduced into the polysaccharide in the following manner: The hydroxyl bond to the steroid ring is caused to react with a diamine, followed by the introduction of the steroid-based functional group into the branches of β-1,3-glucan by the reductive amination as mentioned earlier.